

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

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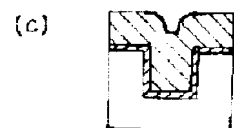
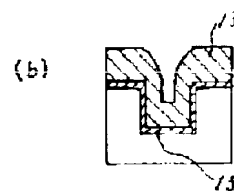
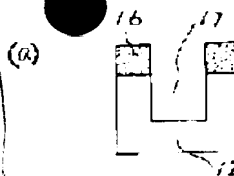
APPLICANT : MITSUBISHI ELECTRIC CORP;

INVENTOR : HASEGAWA MAKIKO;

INT.CL. : H01L 21/3205 H01L 21/3065

TITLE : WIRING FOR INTEGRATED CIRCUIT  
AND ITS MANUFACTURE

5,892,286  
equiv.



ABSTRACT : PROBLEM TO BE SOLVED: To adjust the aspect ratios of a plurality of wirings formed on the same layer in an integrated circuit so that the ratios can fall within a fixed range by forming grooves by plasma etching an insulating film with a gas prepared by adding an additive gas containing carbon to an etching gas containing carbon and fluorine and filling up the grooves with a conductive material.

SOLUTION: Grooves 17 are formed by plasma etching an insulating film 12 coated with a resist mask 16 with a gas prepared by adding an additive gas containing carbon to an etching gas containing carbon and fluorine and the grooves 17 are filled up with a conductive material 13. For example, after an  $\text{SiO}_2$  film is formed by the plasma CVD method by using a TEOS as a raw material as an interlayer insulating film 12 and a resist mask 16 is formed on the surface of the film 12, the grooves 17 having different depths are formed by RIE. A mixed gas of  $\text{C}_4\text{F}_8$  and CO is used as the etching, gas of the RIE. Then, after a TiN film 15 having a thickness of 30nm is formed, an A Si alloy 13 is formed by sputtering and the grooves 17 are filled up by making the alloy 13 to reflow to the grooves 17.

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